3
Cancer

Co-Lead Agencies: Centers for Disease Control and Prevention;
National Institutes of Health

Contents

Goal

Reduce the number of new cancer cases as well as the illness, disability, and death caused by cancer.

Overview

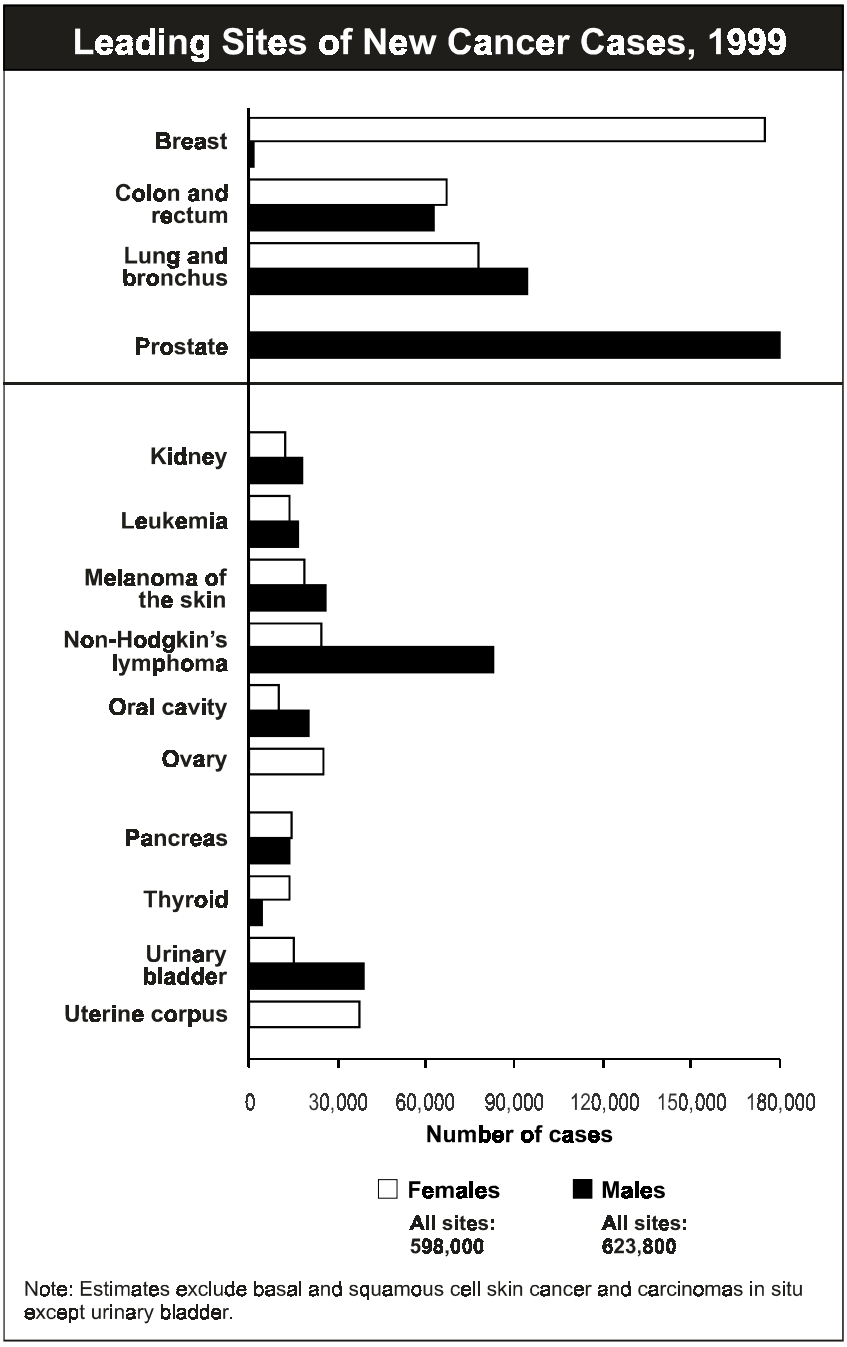
Cancer is the second leading cause of death in the United States. During 1999, an estimated 1,221,800 persons in the United States were diagnosed with cancer; 563,100 persons were expected to die from cancer.[1] These estimates did not include most skin cancers, and new cases of skin cancer are estimated to exceed 1 million per year. One-half of new cases of cancer occur in people aged 65 years and over.[2]

About 491,400 Americans who get cancer in a given year, or 4 in 10 patients, are expected to be alive 5 years after diagnosis. When adjusted for normal life expectancy (accounting for factors such as dying of heart disease, injuries, and diseases of old age), a "relative" 5-year survival rate of 60 percent is seen for all cancers.[1] This rate means that the chance of a person recently diagnosed with cancer being alive in 5 years is 60 percent of the chance of someone not diagnosed with cancer. Five-year relative survival rates commonly are used to monitor progress in the early detection and treatment of cancer and include persons who are living 5 years after diagnosis, whether in remission, disease free, or under treatment.

Issues and Trends

Cancer death rates for all sites combined decreased an average of 0.6 percent per year from 1990 to 1996.[3] This decrease occurred after rates had increased by 0.4 percent per year from 1973 to 1990.[4] Death rates for male lung, female breast, prostate, and colorectal cancers decreased significantly during the 1990-96 period.[3] The lung and bronchus, prostate, female breast, and colon and rectum were the most common cancer sites for all racial and ethnic populations in the United States and together accounted for approximately 54 percent of all newly diagnosed cancers.[1]

In addition to the human toll of cancer, the financial costs of cancer are substantial.[5] The overall annual costs for cancer are estimated at $107 billion, with $37 billion for direct medical costs (the total of all health expenditures), $11 billion for costs of illness (the cost of low productivity due to illness), and $59 billion for costs of death (the cost of lost productivity due to death). Treatment for lung, breast, and prostate cancers alone accounts for more than half of the direct medical costs.



Source: American Cancer Society, *Surveillance Research,* 1999.

Disparities

Cancer death rates vary by gender, race, and ethnicity.[3] Male cancer death rates peaked in 1990 at 220.8 per 100,000, and female death rates peaked a year later at 142.2 per 100,000. After the peak year, through 1996, male cancer deaths for all sites decreased on average by 1 percent per year, and female deaths decreased on average by 0.4 percent per year. There were significant decreases in mortality for lung, prostate, brain, and other nervous system cancers in males and a significant decrease in breast cancer mortality for females.[3] Among males, lung cancer death

rates have declined since 1990. In contrast, lung cancer death rates have continued to increase among females. Since 1987, more females have died from lung cancer than breast cancer.

African Americans are about 34 percent more likely to die of cancer than are whites and more than two times more likely to die of cancer than are Asian/Pacific Islanders, American Indians, and Hispanics.[1] African American women are more likely to die of breast and colon cancers than are women of any other racial and ethnic group, and they have approximately the same lung cancer mortality rates as white women. African American men have the highest mortality rates of colon and rectum, lung, and prostate cancers. Age-adjusted lung cancer death rates are approximately 40 percent higher among African American males than white males. Little difference in age-adjusted lung cancer death rates has been observed between African American females and white females. Hispanics have higher rates of cervical, esophageal, gallbladder, and stomach cancers. Similarly, some specific forms of cancer affect other ethnic groups at rates higher than the national average (for example, stomach and liver cancers among Asian American populations and colon and rectum cancer among Alaska Natives). Racial and ethnic groups have lower survival rates than whites for most cancers.[1]

Differences between the races represent both a challenge to understand the reasons and an opportunity to reduce illness and death and to improve survival rates.

The Hispanic cancer experience also differs from that of the non-Hispanic white population, with Hispanics having higher rates of cervical, esophageal, gallbladder, and stomach cancers. New cases of female breast and lung cancers are increasing among Hispanics, who are diagnosed at later stages and have lower survival rates than whites.

The recent decrease in deaths from breast cancer in white females is attributed to greater use of breast cancer screening in regular medical care. However, new cases of breast cancer in African American females continue to increase, and deaths continue to increase as well, in part, because breast cancer is diagnosed at later stages in African American females.[1]

Data on colorectal cancer (CRC) show a decline in new cases and death rates in white males and females, stable new case rates in African Americans, and a continued rise in death rates in African American males. Five-year survival rates are 64 percent in whites and 52 percent in African Americans (1989-94). Early detection and treatment play a key role in these survival rates.

New cases of prostate cancer peaked in 1992 at 190.8 per 100,000 people and declined on average by 8.5 percent each year from 1992 to 1996. Prostate cancer death rates peaked in 1991 at 26.7 per 100,000 people; rates decreased on average by 2.1 percent each year from 1991 to 1995. Causes of the trends are unclear but may be attributed to a number of factors that are under investigation.

Possible disparities regarding the health status of lesbian women and possible barriers to access to health services by lesbians have been identified by the Institute of Medicine as a research priority.[6]

Opportunities

Evidence suggests that several types of cancer can be prevented and that the prospects for surviving cancer continue to improve. The ability to reduce cancer death rates depends, in part, on the existence and application of various types of resources. First, the means to provide culturally and linguistically appropriate information on prevention, early detection, and treatment to the public and to health care professionals are essential. Second, mechanisms or systems must exist for providing people with access to state-of-the-art preventive services and treatment. Where suitable, participation in clinical trials also should be encouraged. Third, a mechanism for maintaining continued research progress and for fostering new research is essential. Genetic information that can be used to improve disease prevention strategies is emerging for many cancers and may provide the foundation for improved effectiveness in clinical and preventive medicine services.

To provide new opportunities for cancer prevention and control in the future, there is a continuing and vital need to foster new, innovative research on both the causes of cancer (including genetic and environmental causes) and on methods to translate biologic and epidemiologic findings into effective prevention and control programs for use by government and community organization to further reduce the Nation's cancer burden.

These needs can be met, in part, with the network of cancer control resources now in place. This network has the organizational and personnel capabilities for various cancer interventions. Despite the extent of these resources, they alone are insufficient to reduce deaths from cancer. Gaps exist in information transfer, optimal practice patterns, research capabilities, and other areas. These must be recognized and filled to meet cancer prevention and control needs.

It is estimated that as much as 50 percent or more of cancer can be prevented through smoking cessation and improved dietary habits, such as reducing fat consumption and increasing fruit and vegetable consumption.[7, 8] Physical activity and weight control also can contribute to cancer prevention.[9, 10]

Scientific data from randomized trials of cancer prevention together with expert opinions suggest that compliance with screening recommendations for cancer of the breast, cervix, and colon/rectum could reduce deaths from these cancers.

To reduce breast cancer deaths, a high percentage of females in the United States aged 40 years and older need to comply with screening recommendations. A reduction in breast cancer deaths could be expected to occur after a delay of roughly 7 years.[11] To reduce cervical cancer deaths, a high percentage of females in the United States who are aged 18 years and older need to comply with screening rec-

ommendations. Evidence from randomized preventive trials is unavailable, but expert opinion suggests that a beneficial impact on cervical cancer death rates would be expected to occur after a delay of a few years.

Evidence shows that a reduction in CRC deaths can be achieved through detection and removal of precancerous polyps and treatment of CRC in its earliest stages. The findings from three randomized controlled trials indicate that biennial screening with fecal occult blood tests (FOBT) can reduce deaths from CRC by 15 to 21 percent in people aged 45 to 80 years.[12, 13, 14] One trial[15] reported a 33 percent reduction in deaths with annual screening in the same age groups, and a simulation model showed a 56 percent reduction.[16] The efficacy of sigmoidoscopy has been supported by three case-control studies[17, 18, 19] that showed 59 to 79 percent reductions in CRC deaths from cancers within reach of the sigmoidoscope in age groups 45 years and older.

Prostate cancer interventions that include preventive strategies are not available at this time because it is unclear whether any of the factors that increase the risk of prostate cancer can be changed. Race and age are risk factors: African Americans and older men are at higher risk. Widespread prostate cancer screening should be approached with caution until the results of clinical trials provide evidence that screening does more good than harm.[20] Some advocates favor screening programs targeting high-risk groups, including African Americans and males with a positive family history of prostate cancer. However, there is no clinical evidence that screening tests should be performed with these high-risk groups.

Melanoma and other skin cancers were expected to claim the lives of almost 9,200 persons in 1999.[1] Insufficient evidence exists to determine whether routine skin examinations (self or physician) decrease deaths from melanoma or other skin cancers. However, many of the skin cancers diagnosed each year could be prevented by limiting exposure to the sun, by wearing protective clothing, and by using sunscreen. Research into the genetic risk of disease may provide the basis for identifying the individuals most at risk and the preventive methods best tailored for reducing those risks.

For all cancers, treatments designed to increase survival are needed along with improved access to state-of-the-art care. In addition to measurements of survival, indices of quality of life for both the short term and long term are regarded as important considerations.

Interim Progress Toward Year 2000 Objectives

The Healthy People 2000 objective for total cancer deaths was achieved for the total population by 1995. Lung cancer deaths declined for the first time in 50 years in 1991, declined again in 1992, remained level in 1993, and then dropped again in 1994, 1995, and 1996. The decline in the age-adjusted death rate for CRC for

the total population has gone beyond the year 2000 target, but declines in death rates have not been as substantial for the black population. Improvements were observed in cancer risk factors, such as tobacco use and dietary fat intake. Data also showed some improvement in the proportion of women receiving mammograms and Pap tests. In addition, for both mammograms and Pap tests, the disparity in use rates for most of the population subgroups and those for all women either has been reduced or eliminated.

Note: Unless otherwise noted, data are from Centers for Disease Control and Prevention, National Center for Health Statistics, *Healthy People 2000 Review, 1998-99.*

Cancer

Goal: Reduce the number of new cancer cases as well as the illness, disability, and death caused by cancer.

Number	Objective
3-1	Cancer deaths
3-2	Lung cancer deaths
3-3	Breast cancer deaths
3-4	Cervical cancer deaths
3-5	Colorectal cancer deaths
3-6	Oropharyngeal cancer deaths
3-7	Prostate cancer deaths
3-8	Melanoma cancer deaths
3-9	Sun exposure
3-10	Provider counseling about preventive measures
3-11	Pap tests
3-12	Colorectal cancer screening
3-13	Mammograms
3-14	Statewide cancer registries
3-15	Cancer survival

3-1. Reduce the overall cancer death rate.

Target: 158.7 cancer deaths per 100,000 population.

Baseline: 201.4 cancer deaths per 100,000 population in 1998 (preliminary data; age adjusted to the year 2000 standard population).

Target setting method: 21 percent improvement.

Data source: National Vital Statistics System (NVSS), CDC, NCHS.

Total Population, 1997*	**Cancer Deaths** Rate per 100,000
TOTAL	205.7
Race and ethnicity	
American Indian or Alaska Native	131.8
Asian or Pacific Islander	127.2
Asian	DNC
Native Hawaiian and other Pacific Islander	DNC
Black or African American	262.1
White	202.2
Hispanic or Latino	125.5
Not Hispanic or Latino	210.4
Black or African American	268.5
White	205.7
Gender	
Female	171.6
Male	258.0
Education level (aged 25 to 64 years)	
Less than high school	137.1
High school graduate	141.6
At least some college	82.3

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.
Note: Age adjusted to the year 2000 standard population.
*New data for population groups will be added when available.

3-2. Reduce the lung cancer death rate.

Target: 44.8 deaths per 100,000 population.

Baseline: 57.4 lung cancer deaths per 100,000 population in 1998 (preliminary data; age adjusted to the year 2000 standard population).

Target setting method: 22 percent improvement.

Data source: National Vital Statistics System (NVSS), CDC, NCHS.

Total Population, 1997*	**Lung Cancer Deaths** Rate per 100,000
TOTAL	58.1
Race and ethnicity	
American Indian or Alaska Native	36.3
Asian or Pacific Islander	28.9
Asian	DNC
Native Hawaiian and other Pacific Islander	DNC
Black or African American	67.9
White	58.0
Hispanic or Latino	23.9
Not Hispanic or Latino	60.2
Black or African American	69.6
White	59.9
Gender	
Female	41.4
Male	81.6
Education level (aged 25 to 64 years)	
Less than high school	48.3
High school graduate	42.0
At least some college	18.4

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.
Note: Age adjusted to the year 2000 standard population.
*New data for population groups will be added when available.

Lung cancer is the most common cause of cancer death among both females and males in the United States. Estimates indicated that 171,600 (77,600 females and 94,000 males) new cases of lung cancer would be diagnosed in 1999; 158,900

persons (68,000 females and 90,900 males) would die from lung cancer in 1999, accounting for 28 percent of all cancer deaths.[1]

Cigarette smoking is the most important risk factor for lung cancer, accounting for 68 to 78 percent of lung cancer deaths among females and 88 to 91 percent of lung cancer deaths among males.[21] Other risk factors include occupational exposures (radon, asbestos) and indoor and outdoor air pollution (radon, environmental tobacco smoke).[22] One to two percent of lung cancer deaths are attributable to air pollution.[23] Smoking cessation decreases the risk of lung cancer to 30-50 percent of that of continuing smokers after 10 years of abstinence.[7]

3-3. Reduce the breast cancer death rate.

Target: 22.2 deaths per 100,000 females.

Baseline: 27.7 breast cancer deaths per 100,000 females in 1998 (preliminary data; age adjusted to the year 2000 standard population).

Target setting method: 20 percent improvement.

Data source: National Vital Statistics System (NVSS), CDC, NCHS.

Females, 1997*	**Breast Cancer Deaths** Rate per 100,000
TOTAL	28.6
Race and ethnicity	
American Indian or Alaska Native	13.1
Asian or Pacific Islander	12.6
Asian	DNC
Native Hawaiian and other Pacific Islander	DNC
Black or African American	37.7
White	28.0
Hispanic or Latino	17.8
Not Hispanic or Latino	29.2
Black or African American	38.7
White	28.4

Females, 1997*	Breast Cancer Deaths Rate per 100,000
Education level (aged 25 to 64 years)	
Less than high school	21.2
High school graduate	29.6
At least some college	22.9

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.
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*New data for population groups will be added when available.

Breast cancer is the most common cancer among women in the United States. An estimated 175,000 new cases were expected to be diagnosed in 1999. About 43,700 U.S. women were expected to die from breast cancer in 1999, accounting for about 16.5 percent of cancer deaths among women.[1] Death from breast cancer can be reduced substantially if the tumor is discovered at an early stage. Mammography is the most effective method for detecting these early malignancies. Clinical trials have demonstrated that mammography screening can reduce breast cancer deaths by 20 to 39 percent in women aged 50 to 74 years and about 17 percent in women aged 40 to 49 years.[24] Breast cancer deaths can be reduced through increased adherence with recommendations for regular mammography screening.

Many breast cancer risk factors, such as age, family history of breast cancer, reproductive history, mammographic densities, previous breast disease, and race and ethnicity, are not subject to intervention.[25, 26] However, being overweight is a well-established breast cancer risk for post-menopausal women that can be addressed.[25] Avoiding weight gain is one method by which older women may reduce their risk of developing breast cancer.

3-4. Reduce the death rate from cancer of the uterine cervix.

Target: 2.0 deaths per 100,000 females.

Baseline: 3.0 cervical cancer deaths per 100,000 females in 1998 (preliminary data; age adjusted to the year 2000 standard population).

Target setting method: Better than the best.

Data source: National Vital Statistics System (NVSS), CDC, NCHS.

Females, 1997*	Cervical Cancer Deaths Rate per 100,000
TOTAL	3.2
Race and ethnicity	
American Indian or Alaska Native	4.0
Asian or Pacific Islander	3.0
Asian	DNC
Native Hawaiian and other Pacific Islander	DNC
Black or African American	6.5
White	2.8
Hispanic or Latino	3.8
Not Hispanic or Latino	3.1
Black or African American	6.7
White	2.7
Education level (aged 25 to 64 years)	
Less than high school	7.7
High school graduate	5.1
At least some college	2.1

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.
Note: Age adjusted to the year 2000 standard population.
*New data for population groups will be added when available.

Cervical cancer is the 10th most common cancer among females in the United States, with an estimated 12,800 new cases in 1999. The number of new cases of cervical cancer is higher among racial and ethnic minority females than among white females. An estimated 4,800 U.S. females were expected to die from cervical cancer in 1999.[1] Cervical cancer accounts for about 1.8 percent of cancer deaths among females. Infections of the cervix with certain types of sexually transmitted human papilloma virus increases risk of cervical cancer and may be responsible for most cervical cancer in the United States.[27]

Considerable evidence suggests that screening can reduce the number of deaths from cervical cancer. Invasive cervical cancer is preceded in a large proportion of cases by precancerous changes in cervical tissue that can be identified with a Pap test. If cervical cancer is detected early, the likelihood of survival is almost 100 percent with appropriate treatment and followup; that is, almost all cervical cancer deaths could be avoided if all females complied with screening and followup recommendations.[28] Risk is substantially decreased among former smokers in comparison to continuing smokers.[7]

3-5. Reduce the colorectal cancer death rate.

Target: 13.9 deaths per 100,000 population.

Baseline: 21.1 colorectal cancer deaths per 100,000 population in 1998 (preliminary data; age adjusted to the year 2000 standard population).

Target setting method: 34 percent improvement.

Data source: National Vital Statistics System (NVSS), CDC, NCHS.

Total Population, 1997*	**Colorectal Cancer Deaths** Rate per 100,000
TOTAL	21.6
Race and ethnicity	
American Indian or Alaska Native	14.5
Asian or Pacific Islander	13.5
Asian	DNC
Native Hawaiian and other Pacific Islander	DNC
Black or African American	28.8
White	21.1
Hispanic or Latino	12.8
Not Hispanic or Latino	22.1
Black or African American	29.5
White	21.4
Gender	
Female	18.4
Male	26.0
Education level (aged 25 to 64 years)	
Less than high school	10.4
High school graduate	12.0
At least some college	7.7

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.
Note: Age adjusted to the year 2000 standard population.
*New data for population groups will be added when available.

Colorectal cancer is the second leading cause of cancer-related deaths in the United States. An estimated 129,400 cases (67,000 females, 62,400 males) of CRC and 56,600 deaths (28,800 females, 27,800 males) from CRC were expected to occur in 1999. When cancer-related deaths are estimated separately for males

and females, however, CRC becomes the third leading cause of cancer death behind lung and breast cancer for females and behind lung and prostate cancer for males.[1]

Risk factors for CRC may include age, personal and family history of polyps or colorectal cancer, inflammatory bowel disease, inherited syndromes, physical inactivity (colon only), obesity, alcohol use, and a diet high in fat and low in fruits and vegetables.[29] Detecting and removing precancerous colorectal polyps and detecting and treating the disease in its earliest stages will reduce deaths from CRC. FOBT and sigmoidoscopy are widely used to screen for CRC, and barium enema and colonoscopy are used as diagnostic tests.

3-6. Reduce the oropharyngeal cancer death rate.

Target: 2.6 deaths per 100,000 population.

Baseline: 2.9 oropharyngeal deaths per 100,000 population in 1998 (preliminary data; age adjusted to the year 2000 standard population).

Target setting method: 10 percent improvement.

Data source: National Vital Statistics System (NVSS), CDC, NCHS.

Total Population, 1997*	**Oropharyngeal Cancer Deaths** Rate per 100,000
TOTAL	3.0
Race and ethnicity	
American Indian or Alaska Native	2.6
Asian or Pacific Islander	2.5
Asian	DNC
Native Hawaiian and other Pacific Islander	DNC
Black or African American	4.7
White	2.8
Hispanic or Latino	1.8
Not Hispanic or Latino	3.1
Black or African American	4.8
White	2.9
Gender	
Female	1.8
Male	4.6

Total Population, 1997*	Oropharyngeal Cancer Deaths Rate per 100,000
Education level (aged 25 to 64 years)	
Less than high school	3.5
High school graduate	3.0
At least some college	1.3

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.
Note: Age adjusted to the year 2000 standard population.
*New data for population groups will be added when available.

Oral and pharyngeal cancers comprise a diversity of malignant tumors that affect the oral cavity and pharynx; the overwhelming majority of these tumors are squamous cell carcinomas. In 1999, 29,000 new cases of oropharyngeal cancer were expected to be diagnosed, and approximately 8,100 deaths were expected to occur from the disease. Oropharyngeal cancer is the 10th most common cancer among U.S. men and the 14th most common among U.S. women.[1] Its 5-year survival rate is only 53 percent. The risk of oral cancer is increased in current smokers. Alcohol consumption is an independent risk factor, and when alcohol is combined with use of tobacco products, 90 percent of all oral cancers are explained.[30]

3-7. Reduce the prostate cancer death rate.

Target: 28.7 deaths per 100,000 males.

Baseline: 31.9 prostate cancer deaths per 100,000 males in 1998 (preliminary data; age adjusted to the year 2000 standard population).

Target setting method: 10 percent improvement.

Data source: National Vital Statistics System (NVSS), CDC, NCHS.

Males, 1997*	Prostate Cancer Deaths Rate per 100,000
TOTAL	33.8
Race and ethnicity	
American Indian or Alaska Native	19.3
Asian or Pacific Islander	14.5
Asian	DNC
Native Hawaiian and other Pacific Islander	DNC

Males, 1997*	Prostate Cancer Deaths Rate per 100,000
Black or African American	71.1
White	31.1
Hispanic or Latino	20.8
Not Hispanic or Latino	34.4
Black or African American	72.5
White	31.5
Education level (aged 25 to 64 years)	
Less than high school	4.2
High school graduate	4.6
At least some college	3.1

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.
Note: Age adjusted to the year 2000 standard population.
*New data for population groups will be added when available.

Prostate cancer is the most commonly diagnosed form of cancer (other than skin cancer) in males and the second leading cause of cancer death among males in the United States. Prostate cancer was expected to account for an estimated 179,300 cases and 37,000 deaths in 1999, or about 27 percent and 14 percent of the cases and deaths due to all cancers, respectively.[1] Prostate cancer is most common in men aged 65 years and older, who account for approximately 80 percent of all cases of prostate cancer.

Digital rectal examination (DRE) and the prostate-specific antigen (PSA) test are two commonly used methods for detecting prostate cancer. Clinical trials of the benefits of DRE and PSA screening are under way, with results expected in the early 21st century.

Although several treatment alternatives are available for prostate cancer, their impact on reducing death from prostate cancer when compared with no treatment in patients with operable cancer is uncertain.[31, 32, 33] Efforts aimed at reducing deaths through screening and early detection remain controversial because of the uncertain benefits and potential risks of screening, diagnosis, and treatment.

3-8. Reduce the rate of melanoma cancer deaths.

Target: 2.5 deaths per 100,000 population.

Baseline: 2.8 melanoma cancer deaths per 100,000 population in 1998 (preliminary data; age adjusted to the year 2000 standard population).

Target setting method: 11 percent improvement.

Data source: National Vital Statistics System (NVSS), CDC, NCHS.

Total Population, 1997*	Melanoma Cancer Deaths Rate per 100,000
TOTAL	2.8
Race and ethnicity	
American Indian or Alaska Native	DSU
Asian or Pacific Islander	0.6
Asian	DNC
Native Hawaiian and other Pacific Islander	DNC
Black or African American	0.6
White	3.1
Hispanic or Latino	0.8
Not Hispanic or Latino	2.8
Black or African American	0.6
White	3.3
Gender	
Female	1.9
Male	4.0
Education level (aged 25 to 64 years)	
Less than high school	1.8
High school graduate	2.8
At least some college	2.3

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.
Note: Age adjusted to the year 2000 standard population.
*New data for population groups will be added when available.

Melanoma, the deadliest of all skin cancers, accounted for an estimated 44,200 new cancer cases and 7,300 deaths in 1999.[1] Trends show annual rises in the number of new cases of 4.3 percent (1973-90) and 2.5 percent (1990-95) and an annual rise in deaths of 1.7 percent (1973-90) followed by a decline of 0.4 percent in 1990-95. In whites, the population at highest risk, death rates are twice as high in males as in females.[3]

Although the cause of melanoma is unknown, risk factors include a personal or family history of melanoma, the presence of atypical moles, a large number of moles, intermittent sun exposure, a history of sunburns early in life, freckles, and

sun-sensitive skin (as measured by poor tanning ability and light skin, eye, or hair color).[34] Evidence is insufficient to determine whether early detection through routine skin examination (self or physician) decreases the number of deaths from melanoma, but reduced ultraviolet exposure is likely to have a beneficial impact on the risk of melanoma and other skin cancers (basal and squamous cell skin cancers).[33]

3-9. Increase the proportion of persons who use at least one of the following protective measures that may reduce the risk of skin cancer: avoid the sun between 10 a.m. and 4 p.m., wear sun-protective clothing when exposed to sunlight, use sunscreen with a sun protective factor (SPF) of 15 or higher, and avoid artificial sources of ultraviolet light.

3-9a. (Developmental) Increase the proportion of adolescents in grades 9 through 12 who follow protective measures that may reduce the risk of skin cancer.

Potential data source: Youth Risk Behavioral Surveillance System (YRBSS), CDC, NCCDPHP.

3-9b. Increase the proportion of adults aged 18 years and older who follow protective measures that may reduce the risk of skin cancer.

Target: 75 percent of adults aged 18 years and older use at least one of the identified protective measures.

Baseline: 49 percent of adults aged 18 years and older regularly used at least one protective measure in 1998 (preliminary data; age adjusted to the year 2000 standard population).

Target setting method: Better than the best.

Data source: National Health Interview Survey (NHIS), CDC, NCHS. Data on artificial ultraviolet light source are developmental.

Persons Aged 18 Years and Older, 1992*	Type of Protective Measure			
	3-9b. Regularly Used At Least One Protective Measure	Limited Sun Exposure†	Wore Protective Clothing†	Used Sun-screen†
	Percent			
TOTAL	54	32	29	29
Race and ethnicity				
American Indian or Alaska Native	42	DSU	DSU	DSU
Asian or Pacific Islander	52	38	35	16
Asian	DNA	DNA	DNA	DNA
Native Hawaiian and other Pacific Islander	DNA	DNA	DNA	DNA
Black or African American	54	45	30	9
White	54	30	29	32
Hispanic or Latino	47	35	26	20
Not Hispanic or Latino	54	32	29	29
Black or African American	54	46	31	9
White	54	30	29	33
Gender				
Female	61	39	29	37
Male	46	24	28	20
Education level (aged 25 years and older)				
Less than high school	52	38	30	17
High school graduate	54	34	30	29
Some college	60	32	35	37
Family income level				
Poor	52	39	27	17
Near poor	54	36	30	22
Middle/high income	56	30	29	34
Geographic location				
Urban	54	33	28	30
Rural	52	29	31	26

Persons Aged 18 Years and Older, 1992*	Type of Protective Measure			
	3-9b. Regularly Used At Least One Protective Measure	Limited Sun Exposure†	Wore Protective Clothing†	Used Sun-screen†
	Percent			
Disability status				
With activity limitations	57	38	33	27
Without activity limitations	53	31	28	29

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.

Note: Age adjusted to the year 2000 standard population.

*New data for population groups will be added when available.

†Data for limit sun exposure, use sunscreen, and wear protective clothing are displayed to further characterize the issue.

3-10. Increase the proportion of physicians and dentists who counsel their at-risk patients about tobacco use cessation, physical activity, and cancer screening.

Target and baseline:

Objective	Increase Counseling About Tobacco Use Cessation, Physical Activity, and Cancer Screening	1988 Baseline (unless noted)	2010 Target
		Percent	
3-10a.	Internists who counsel about smoking cessation	50	85
3-10b.	Family physicians who counsel about smoking cessation	43	85
3-10c.	Dentists who counsel about smoking cessation	59 (1997)	85
3-10d.	Primary care providers who counsel about blood stool tests	56	85
3-10e.	Primary care providers who counsel about protoscopic examinations	23	85
3-10f.	Primary care providers who counsel about mammograms	37	85
3-10g.	Primary care providers who counsel about Pap tests	55	85
3-10h.	Primary care providers who counsel about physical activity	22 (1995)	85

Target setting method: Better than the best.

Data sources: Survey of Physicians' Attitudes and Practices in Early Cancer Detection, NIH, NCI; National Ambulatory Medical Care Survey (NAMCS), CDC, NCHS; Survey of Current Issues in Dentistry, American Dental Association.

Smoking cessation,[7, 21] adoption of healthy diets,[8] increased physical activity,[9, 10] and increased cancer screening[11, 12, 13, 14, 15, 16, 17, 18, 19] can all contribute to reduced numbers of cancer deaths. Experts recommend that providers screen patients for breast, cervical, and colorectal cancers and counsel patients to prevent or reduce tobacco use, promote physical activity, and promote a healthy diet.[33] Provider counseling should be conducted in a linguistically and culturally appropriate manner.

3-11. Increase the proportion of women who receive a Pap test.

Target and baseline:

Objective	Pap Test	1998 Baseline*	2010 Target
		Percent	
3-11a.	Women aged 18 years and older who have ever received a Pap test.	92	97
3-11b.	Women aged 18 years and older who received a Pap test within the preceding 3 years.	79	90

*Preliminary data; age adjusted to the year 2000 standard population. Includes women without a uterine cervix.

Target setting method: Better than the best.

Data source: National Health Interview Survey (NHIS), CDC, NCHS.

Women Aged 18 Years and Older, 1994*	3-11a. Pap Test Ever	3-11b. Pap Test in Past 3 Years
	Percent	
TOTAL	94	77
Race and ethnicity		
American Indian or Alaska Native	93	68
Asian or Pacific Islander	82	63
Asian	DNA	DNA
Native Hawaiian and other Pacific Islander	DNA	DNA
Black or African American	96	81
White	95	77

Women Aged 18 Years and Older, 1994*	3-11a. Pap Test Ever	3-11b. Pap Test in Past 3 Years
	Percent	
Hispanic or Latino	91	71
Not Hispanic or Latino	95	77
Black or African American	96	82
White	95	77
Education level (aged 25 years and older)		
Less than high school	94	66
High school graduate	97	76
At least some college	97	83
Disability status		
With activity limitations	95	74
Without activity limitations	94	78
Family income level		
Poor	91	69
Near poor	94	72
Middle/high income	96	82
Geographic location		
Urban	94	77
Rural	95	76

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.

Note: Age adjusted to the year 2000 standard population. Includes women without a uterine cervix.

*New data for population groups will be added when available.

3-12. Increase the proportion of adults who receive a colorectal cancer screening examination.

Target and baseline:

Objective	Colorectal Cancer Screening	1998 Baseline*	2010 Target
		Percent	
3-12a.	Adults aged 50 years and older who have received a fecal occult blood test (FOBT) within the preceding 2 years.	34	50
3-12b.	Adults aged 50 years and older who have ever received a sigmoidoscopy	38	50

*Preliminary data; age adjusted to the year 2000 standard population.

Target setting method: Better than the best.

Data source: National Health Interview Survey (NHIS), CDC, NCHS.

Adults Aged 50 Years and Older, 1992*	3-12a. Fecal Occult Blood Test	3-12b. Sigmoidoscopy
	Percent	
TOTAL	30	33
Race and ethnicity		
American Indian or Alaska Native	DSU	DSU
Asian or Pacific Islander	DSU	DSU
Asian	DSU	DSU
Native Hawaiian and other Pacific Islander	DSU	DSU
Black or African American	25	27
White	30	34
Hispanic or Latino	22	28
Not Hispanic or Latino	30	33
Black or African American	25	27
White	31	34
Gender		
Female	30	31
Male	30	36

Adults Aged 50 Years and Older, 1992*	3-12a. Fecal Occult Blood Test	3-12b. Sigmoidoscopy
	Percent	
Education level		
Less than high school	23	28
High school graduate	29	30
At least some college	38	43
Disability status		
Persons with activity limitations	32	37
Persons without activity limitations	28	31
Family income level		
Poor	22	28
Near poor	28	33
Middle/high income	34	36
Geographic location		
Urban	31	34
Rural	25	31

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.

Note: crude rates; data are not age adjusted.

*New data for population groups will be added when available.

3-13. Increase the proportion of women aged 40 years and older who have received a mammogram within the preceding 2 years.

Target: 70 percent.

Baseline: 68 percent of women aged 40 years and older received a mammogram within the preceding 2 years in 1998 (preliminary data, age adjusted to the year 2000 standard population).

Target setting method: Better than the best.

Data source: National Health Interview Survey (NHIS), CDC, NCHS.

Women Aged 40 Years and Older, 1994*	Mammogram Percent
TOTAL	59
Race and ethnicity	
American Indian or Alaska Native	DSU
Asian or Pacific Islander	49
Asian	DSU
Native Hawaiian and other Pacific Islander	DSU
Black or African American	61
White	59
Hispanic or Latino	51
Not Hispanic or Latino	60
Black or African American	60
White	61
Education level	
Less than high school	47
High school graduate	59
At least some college	67
Family income level	
Poor	43
Near poor	48
Middle/high income	67
Geographic location	
Urban	60
Rural	57
Disability status	
With activity limitations	55
Without activity limitations	61

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.
Note: Age adjusted to the year 2000 standard population.
*New data for population groups will be added when available.

3-14. Increase the number of States that have a statewide population-based cancer registry that captures case information on at least 95 percent of the expected number of reportable cancers.

Target: 45 States.

Baseline: 21 States in 1999.

Target setting method: 114 percent improvement.

Data sources: National Program of Cancer Registries, CDC; SEER Program, NIH, NCI.

Cancer surveillance serves as the foundation for a national comprehensive strategy to reduce illness and death from cancer. Such surveillance is the indispensable tool that enables public health professionals at the national, State, and community levels to better understand and tackle the cancer burden while advancing clinical, epidemiological, and health services research. In addition, surveillance data from cancer registries, such as cancer incidence and deaths, stage at diagnosis, treatment, and demographics of cancer patients, are essential for planning and evaluating cancer control programs, allocating preventive and treatment resources, targeting and conducting research, and responding to concerns from citizens about the occurrence of cancer in their communities.

Population-based State cancer registries that provide accurate, complete, and timely data are a critical component of the public health infrastructure in the United States. The National Program of Cancer Registries (NPCR) provides funds to 45 States to assist in planning or enhancing cancer registries; develop model legislation and regulations for programs to increase the viability of registry operations; set standards for data quality, completeness, and timeliness; provide training for registry personnel; and help establish computerized reporting and data processing systems. The National Cancer Institute's SEER Program covers the remaining 5 States.

3-15. Increase the proportion of cancer survivors who are living 5 years or longer after diagnosis.

Target: 70 percent.

Baseline: 59 percent of persons with invasive cancer of any type were living 5 years or longer after diagnosis in 1989–95.

Target setting method: 19 percent improvement.

Data source: Surveillance, Epidemiology, and End Results (SEER), NIH, NCI.

Persons With Invasive Cancer of Any Type, 1989-95	5 Years or Longer Survival Percent
TOTAL	59
Race and ethnicity	
American Indian or Alaska Native	DNA
Asian or Pacific Islander	DNA
Asian	DNA
Native Hawaiian and other Pacific Islander	DNA
Black or African American	48
White	61
Hispanic or Latino	DNA
Not Hispanic or Latino	DNA
Black or African American	DNA
White	DNA
Gender	
Female	61
Male	58
Education level (aged 25 to 64 years)	
Less than high school	DNA
High school graduate	DNA
At least some college	DNA

DNA = Data have not been analyzed. DNC = Data are not collected. DSU = Data are statistically unreliable.

Related Objectives From Other Focus Areas

19. Nutrition and Overweight

19-5. Fruit intake

19-6. Vegetable intake

19-8. Saturated fat intake

19-9. Total fat intake

21. Oral Health

21-6. Early detection of oral and pharyngeal cancer

21-17. Annual examinations for oral and pharyngeal cancer

27. Tobacco Use

27-1. Adult tobacco use

27-2. Youth tobacco use

27-5. Smoking cessation by adults

27-7. Smoking cessation by adolescents

27-8. Insurance coverage of cessation treatment

Terminology

(A listing of all abbreviations and acronyms used in this publication appears in Appendix K.)

Cancer: A term for diseases in which abnormal cells divide without control. Cancer cells can invade nearby tissue and can spread through the bloodstream and lymphatic system to other parts of the body.

Cancer screening: Checking for changes in tissue, cells, or fluids that may indicate the possibility of cancer when there are no symptoms.

Carcinoma: Cancer that begins in the epithelial tissue that lines or covers an organ.

Clinical trials: Research studies that evaluate the effectiveness of new treatment or disease prevention methods on patients.

Digital rectal exam (DRE): A test in which the health care provider inserts a lubricated, gloved finger into the rectum to feel for abnormal areas.

Fecal occult blood test (FOBT): A test to check for small amounts of hidden blood in stool.

Grade: A system for classifying cancer cells in terms of how abnormal they appear under a microscope. The grading system provides information about the probable growth rate of the tumor and its tendency to spread. The systems used to grade tumors vary with each type of cancer. Grading plays a role in treatment decisions.

Malignant: Cancerous.

Mammogram: An x-ray of the breast.

Melanoma: Cancer of the cells that produce pigment in the skin.

Pap (Papanicolaou) test: Microscopic examination of cells collected from the cervix. The Pap test is used to detect cancer, changes in the cervix that may lead to cancer, and noncancerous conditions, such as infection or inflammation.

PSA (prostate-specific antigen) test: A test that measures the level of an enzyme (PSA) in the blood that increases due to diseases of the prostate gland, including prostate cancer.

Risk factor: Something that increases a person's chance of developing a disease.

Sigmoidoscopy: A procedure in which the physician or health care provider looks inside the rectum and the lower part of the colon (sigmoid colon) through a flexible lighted tube. During the procedure, the physician or health care provider may collect samples of tissues or cells for closer examination.

Squamous cells: Flat cells that look like fish scales. These cells are found in the tissue that forms the surface of the skin, the lining of the hollow organs of the body, and the passages of the respiratory and digestive tracts.

Stage: The size and extent of a cancer, including whether the disease has spread from the original site into surrounding tissue and other parts of the body.

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